

Page 2 of 13 (include all attachments in total page count)  
Application No. 10/028,336  
Amendment and Response

**AMENDMENT TO THE CLAIMS:**

1. (currently amended): A prosthetic aortic mechanical valve, comprising a substantially round tubular valve body, which body has a longitudinal axis, an outlet end, a flared inlet end, an inner surface, and an outer surface, said outer surface comprising a semirigid sewing flange and a circumferential groove on said outer surface, said groove lying between and spacing apart said flared inlet end and said semirigid sewing flange; and

flow control means within said tubular valve body, ~~said flow control means~~ body for intermittently and reversibly sealing across said valve body inner surface to allow substantially unidirectional flow through said tubular valve body from said inlet end to said outlet end;

wherein said semirigid sewing flange comprises at least first and second flange ~~portions, and wherein said flange portions~~ which are spaced circumferentially apart from each other and longitudinally from said flared inlet end, a plurality of said flange portions comprising at least one post for securing sutures, which post is spaced radially from said outer surface to permit the passage of sutures therebetween.

2. (original): The aortic valve of claim 1 wherein said at least first and second flange portions are spaced between about 4 millimeters and about 12 millimeters from said flared inlet end.

3. (original): The aortic valve of claim 1 wherein each post for securing sutures comprises a non-fibrous tissue adherence area.

4. (original): The aortic valve of claim 3 wherein said groove comprises a non-fibrous circumferential tissue adherence band.

Page 3 of 13 (include all attachments in total page count)  
Application No. 10/028,336  
Amendment and Response

5. (original): The aortic valve of claim 1 comprising first, second and third flange portions.

6. (original): The aortic valve of claim 5 wherein said first and second flange portions subtend an angle at said valve body longitudinal axis of about 130 degrees.

7. (original): The aortic valve of claim 6 wherein said second and third flange portions subtend an angle at said valve body longitudinal axis of about 115 degrees.

8. (canceled)

9. (currently amended): A prosthetic aortic mechanical valve, comprising a substantially round tubular valve body, which body has a longitudinal axis, an outlet end, a flared inlet end, an inner surface, and an outer surface, said outer surface comprising a semirigid sewing flange and a circumferential groove on said outer surface, said groove lying between and spacing apart said flared inlet end and said semirigid sewing flange; and

flow control means within said tubular valve body, said flow control means for intermittently and reversibly sealing across said valve body inner surface to allow substantially unidirectional flow through said tubular valve body from said inlet end to said outlet end;

wherein said semirigid sewing flange comprises at least first and second flange portions, ~~and wherein said flange portions~~ which are spaced circumferentially apart from each other and longitudinally from said flared inlet end, a plurality of said flange portions comprising at least one cleat for securing sutures, which cleat is spaced radially from said outer surface to permit the passage of sutures therebetween.

Page 4 of 13 (include all attachments in total page count)  
Application No. 10/028,336  
Amendment and Response

10. (withdrawn): The aortic valve of claim 9 wherein said at least first and second flange portions are spaced between about 4 millimeters and about 12 millimeters from said flared inlet end.

11. (withdrawn): The aortic valve of claim 9 wherein each cleat for securing sutures comprises a non-fibrous tissue adherence area.

12. (withdrawn): The aortic valve of claim 11 wherein said groove comprises a non-fibrous circumferential tissue adherence band.

13. (withdrawn): The aortic valve of claim 9 comprising first, second and third flange portions.

14. (withdrawn): The aortic valve of claim 13 wherein said first and second flange portions subtend an angle at said valve body longitudinal axis of about 130 degrees.

15. (withdrawn): The aortic valve of claim 14 wherein said second and third flange portions subtend an angle at said valve body longitudinal axis of about 115 degrees.

16. (withdrawn): The aortic valve of claim 9 wherein said tubular valve body comprises pyrolytic carbon, wherein each cleat for securing sutures comprises a non-fibrous tissue adherence area comprising unpolished pyrolytic carbon, and wherein said circumferential groove on said valve body comprises a non-fibrous tissue adherence band, said band comprising unpolished pyrolytic carbon.

17-32. (canceled)

Page 5 of 13 (include all attachments in total page count)  
Application No. 10/028,336  
Amendment and Response

33. (currently amended): A prosthetic aortic mechanical valve, comprising  
a substantially rigid tubular valve body having an inlet and an outlet and inner  
and outer surfaces;

internal flow control means allowing in contact with said inner surface which  
establishes unidirectional blood flow through said valve body;

an external discontinuous semirigid sewing flange disposed circumferentially  
about said outer surface and having portions spaced radially from said surface for  
securing said valve body in a patient; and

a sealing ring comprising an external continuous circumferential non-fibrous  
tissue adherence band on said outer surface of said valve body at a location between  
said inlet and said sewing flange and spaced longitudinally from both said inlet and  
said sewing flange.

34. (currently amended): The prosthetic valve of claim 33 wherein said semirigid  
sewing flange portions comprise ~~comprises~~ a plurality of non-fibrous tissue adherence  
areas on tissue contact surfaces on said radially spaced portions.

35. (new): A prosthetic aortic mechanical valve comprising  
a tubular valve body made of pyrolytic carbon having a longitudinal axis, an  
outlet end, a flared inlet end, an inner surface, and an outer surface, said outer surface  
comprising a semirigid sewing flange and being formed with a circumferential groove,  
said groove lying between and spacing apart said flared inlet end and said semirigid  
sewing flange and including a tissue adherence band of unpolished pyrolytic carbon;  
and

flow control means within said tubular valve body for intermittently and  
reversibly sealing across said valve body inner surface to allow substantially  
unidirectional flow through said tubular valve body from said inlet end to said outlet

Page 6 of 13 (include all attachments in total page count)  
Application. No. 10/028,336  
Amendment and Response

end;

wherein said semirigid sewing flange comprises at least first and second portions which are spaced circumferentially apart from each other and spaced longitudinally from said flared inlet end, a plurality of said flange portions each comprising at least one post for securing sutures, each said post comprising a non-fibrous tissue adherence area comprising unpolished pyrolytic carbon.

36. (new): The aortic valve of claim 35 wherein said at least first and second flange portions are longitudinally spaced between about 4 millimeters and about 12 millimeters from said flared inlet end.

37. (new): The aortic valve of claim 35 wherein each said post for securing sutures comprises a non-fibrous tissue adherence area.

38. (new): The aortic valve of claim 35 comprising first, second and third flange portions.

39. (new): The aortic valve of claim 38 wherein said first and second flange portions subtend an angle at said valve body longitudinal axis of about 130 degrees.

40. (new): The aortic valve of claim 39 wherein said second and third flange portions subtend an angle at said valve body longitudinal axis of about 115 degrees.

41. (new): A prosthetic aortic mechanical valve, which valve comprises  
a substantially rigid tubular valve body of substantially circular cross section, which body has a longitudinal axis, an outlet end, a flared inlet end, an inner surface and an outer surface, said valve body comprising a flange extending radially outward

Page 7 of 13 (include all attachments in total page count)  
Application No. 10/028,336  
Amendment and Response

from the outer surface for attachment of said valve body in the aorta of a patient by sutures extending through the patient's tissue,

flow control means within said tubular valve body for intermittently and reversibly sealing across said valve body inner surface to establish substantially unidirectional flow through said tubular valve body from said inlet end to said outlet end; and

a circumferential continuous tissue adherence band circumscribing said outer surface of said valve body at a location between and spaced apart from said inlet end and said attachment flange.

42. (new): The aortic valve of claim 41 wherein said attachment flange comprises at least first and second flange portions which are spaced circumferentially apart from each other and are formed with openings or notches for securing sutures, said flange portions extending obliquely from said outer valve body surface and in a downstream direction.

43. (new): The aortic valve of claim 42 wherein said at least first and second flange portions are spaced at least about 4 millimeters from said inlet end, and each of said flange portions comprises a non-fibrous tissue adherence area adjacent said openings or notches for securing sutures.

44. (new): The aortic valve of claim 41 wherein said circumferential tissue adherence band is a non-fibrous band.

45. (new): The aortic valve of claim 41 comprising first, second and third flange portions.

Page 8 of 13 (include all attachments in total page count)  
Application No. 10/028,336  
Amendment and Response

46. (new): The aortic valve of claim 45 wherein said first and second flange portions subtend an angle of about 130 degrees at said valve body longitudinal axis.

47. (new): The aortic valve of claim 46 wherein said second and third flange portions subtend an angle of about 115 degrees at said valve body longitudinal axis.

48. (new): The aortic valve of claim 41 wherein said flange portions are formed integral with valve body and so as to be semirigid.

49. (new): The aortic valve of claim 41 wherein said tissue adherence band is located generally centrally within a groove that extends to said inlet end which is flared outward.